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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,315	10/01/2003	Keiji Hayashi	1324.68392	8188
7590	09/21/2005		EXAMINER	
Patrick G. Burns Suite 2500 300 South Wacker Drive Chicago, IL 60606			PAYNE, SHARON E	
			ART UNIT	PAPER NUMBER
			2875	

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/676,315

Applicant(s)

HAYASHI ET AL.

Examiner

Sharon E. Payne

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 9-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 09/821,976.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Specification*

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details. *In this case the abstract is over 150 words.*

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Farchmin et al. (U.S. Patent 5,567,042).

Regarding claim 9, Farchmin et al. discloses a light reflecting reflector (reference number 26), a plurality of cold-cathode tubes (reference numbers 28a-f) disposed inside the reflector (Fig. 4), and an optical waveguide (diffuser plate, reference number 19) connected with the open end of the reflector to guide the light emitted by the cold-cathode tubes (Fig. 3), wherein the reflector has a reflective surface that reflects the

light having been emitted by the cold-cathode tubes in the direction nearly perpendicular to the wall of each tube, in the direction in which the light thus reflected does not re-enter the cold-cathode tubes (Fig. 5).

Concerning claim 10, Farchmin et al. discloses the reflective surface (reference number 50) being so disposed that the surface reflects the emitted light at an angle at which the reflected light runs through the space between the cold-cathode tube and the reflector adjacent thereto or between neighboring cold-cathode tubes (Fig. 5).

Regarding claim 11, Farchmin et al. discloses the reflective surface (reference number 50) being so disposed that the surface reflects the light emitted by one cold-cathode tube at an angle at which the reflected light runs through the space between the one cold-cathode tube and the other cold-cathode tube (Fig. 5) and that the surface reflects the light emitted by the other cold-cathode tube at an angle at which the reflected light runs through the space between the one cold-cathode tube and the wall surface of the reflector (Fig. 5, ray 60).

Concerning claim 12, Farchmin et al. discloses the reflective surface being composed of a plurality of curved segments (Figs. 3-5, reference numbers 54a-f).

4. Claims 13 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Tomoyuki et al. (JP 08-262438).

Regarding claim 13, Tomoyuki et al. discloses a light reflecting reflector (reference number 6), a cold-cathode tube (reference number 5) disposed inside the reflector (Fig. 7), a first optical waveguide (reference number 3) connected with the

open end of the reflector for guiding the light emitted by the cold-cathode tube (Fig. 7), and a second optical waveguide (reference number 9) disposed in the space between the cold-cathode tube and the reflector (Fig. 7) and having an end that faces the end of the first optical waveguide (Fig. 7).

Concerning claim 14, Tomoyuki et al. discloses the profile of the surface of the second optical waveguide (reference number 9) that faces the outer surface of the cold-cathode tube (Fig. 7) is analogous to the profile of the outer surface of the cold-cathode tube (Fig. 7).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuki (JP 10-091079) in view of Farchmin et al.

Regarding claim 15, Kazuki discloses a light source (reference number 1) having a tube with a phosphor dispersed inside the tube (fluorescent tube, reference number 1), a housing (reference number 2) that houses the tube (Fig. 3) and has a reflector formed on an inner surface (Fig. 4), and a transparent filler (reference number 3) filled in the housing (Fig. 5), and an optical waveguide (reference number 4) guiding the light from the light source and emitting the light through a light emitting surface (Fig. 1A). Kazuki does not specifically disclose a cold cathode tube.

Farchmin et al. discloses a cold-cathode tube (reference number 28A).

Using a cold-cathode tube in place of a fluorescent tube is considered to be an obvious variation, since cold-cathode tubes and fluorescent tubes are art-recognized equivalents. As evidence of this, see Naysmith (Figs. 6 and 8). Since both types of tubes are well known in the art, replacing the fluorescent tube with the cold cathode tube to reduce power consumption (Fig. 8 of Naysmith) would involve only routine skill in the art. See M.P.E.P. 2144.06.

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuki in view of JP 10-333590 (hereinafter "Ichikoh") and further in view of JP 09282918 A (hereinafter "Okahira et al.").

Regarding claim 16, Kazuki discloses a light source having a tube (referenced number 1), a housing (reference number 2) that houses the tube (Figs. 3 and 4) and

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has a reflector (reference number 2) formed on an inner surface (Fig. 4), and a transparent filler (reference number 3) filled in the housing (Fig. 8B), an optical waveguide (reference number 4) guiding the light from the light source unit and emitting light through a light-emitting surface (Fig. 8B). Kazuki does not disclose a temperature sensor or a heating element.

Ichikoh discloses a cold cathode tube (reference number 10), temperature sensor (part of reference number 19) for controlling the temperature of the cold-cathode tube (reference number 10).

Okahira et al. discloses a heating element (reference number 46a) for heating the cold-cathode tube (reference number 12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the temperature sensor of Ichikoh in the apparatus of Kazuki to improve brightness of the apparatus. See the English abstract of Ichikoh.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the heating element of Okahira in the apparatus of Kazuki and Ichikoh to "improve the lighting of a cold cathode fluorescent lamp at low temperature." See the English abstract of Okahira et al.

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharon E. Payne whose telephone number is (571) 272-2379. The examiner can normally be reached on regular business hours.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Patent Examiner  
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